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and the description of the membrana tectoria as a cuticular structure (p. 890), may be contrary to fact, but they are blemishes which disappear in the marvelous wealth of accurate information which fills the whole work.

The place that the new *Anatomy* will find is not difficult to predict. Its size and fullness, together with the heaviness of Gegenbaur's style, will probably prevent it from being a popular text-book with most beginners, but its masterly qualities will make it an absolute necessity to every advanced student of vertebrate anatomy. In this respect it will occupy the field formerly held by Wiedersheim's *Lehrbuch*, though it seems to us unlikely that it will replace in any extensive way this author's *Grundriss*, which from its elementary character and simple language makes so satisfactory a book for the beginner.

The heavy debt which vertebrate anatomists already owe to Gegenbaur is materially increased by this accession to the list of best text-books, and it must be the wish of every one that circumstances may favor the early completion of a work destined to be so scholarly and valuable a contribution to the comparative anatomy of the vertebrates.

G. H. P.

The Natural History and Morphology of *Dero vaga*.¹—This interesting little aquatic worm was described twenty years ago by Dr. Joseph Leidy² in this journal as *Aulophorus vagus*. It is found in shady places among vegetation in ponds and ditches, living by preference among masses of floating Lemna or among algæ on the bottom, shifting its position gradually from surface to bottom or *vice versa*, according to the location of food supply. Its food consists of vegetable matter, principally desmids, algæ, and even the fronds of Lemna. The worms inhabit cases which they construct of statoblasts, Arcella shells, the leaves of Lemna, etc. The cases of individuals living at the surface float, and those of individuals living at the bottom sink when the worms are removed. The period of sexual reproduction occurs during the first two weeks of July, when the body cavity posterior to the clitellum is crowded with eggs. Asexual reproduction by fission takes place throughout the year, but most rapidly during warm weather, when it may occur as often as

¹ Brode, H. S. A Contribution to the Morphology of *Dero vaga*, *Journ. of Morph.*, vol. xiv (1898), pp. 141-180, Pls. XIII-XVI.

² Leidy, J. Notice of Some Aquatic Worms of the Family Naidæ, *Am. Nat.*, vol. xiv (1880), pp. 421-425.

three times a week. Three fission zones have been observed in one individual at the same time. As the animal grows in length, the case which it inhabits is extended, and after fission the two daughter-worms divide it by placing their heads together at its middle and forcibly breaking it; each worm then swims away with one-half of the old case. The fission zone is formed near the middle of some segment, usually back of XVII and in front of XXII. The new head and tail are almost completely formed before separation takes place. The number of somites in the new head is constant, being five, while twelve to sixteen segments are visible in the tail before a second fission begins. Worms divided by cutting regenerate the missing part, though only enough segments are regenerated at the anterior end to complete the cephalized portion, *i.e.*, the first five. Thus if two are removed but two regenerate, while if seven are taken away only five new segments are formed. At least three or four segments in addition to the five in the cephalic region are necessary for the regeneration of the tail. Dr. Brode gives a detailed account of the structure of the body wall, of the nervous system, and of the sense organs. Each segment is provided with four lateral nerves which arise from the ventral ganglion and pass to the body wall and thence dorsally. The epidermis is provided with a remarkable series of sense organs, each segment bearing two series arranged in greater and lesser circular bands of twelve and eight organs respectively. These organs are so spaced as to form twenty longitudinal rows extending the whole length of the body. Dr. Brode also confirms Hesse's view that the so-called lateral line of oligochetes is formed by the accumulation of the nucleated plasma portions of the circular muscle fibres and cannot, therefore, be interpreted as a nervous structure. The epidermal sense organs have no share in the formation of this line. The marked serial symmetry of the epidermal sense organs and lateral nerves is held by the author to support the colonial theory of the origin of metamerism.

C. A. K.

Crustacea of Florida and the Bahamas.—Miss Mary J. Rathbun is an indefatigable student of Crustacea. In fact, the mantles of Stimpson, Smith, Kingsley, Say, Gill, Gibbes, and all other past students of the group appear to have fallen on her shoulders. In the paper before us she describes the 127 species of brachyma, collected by the Iowa University Expedition of 1893.¹ Several new

¹ *Bulletin of the Laboratories of Natural History of Iowa University*, June, 1898.